

## Interfacing Dance Knowledge/DS|DM Installation

**Chris Ziegler** (de)

ZKM Karlsruhe  
Associate Artist  
cz@movingimages.de

### **DS|DM Installation**

“Double Skin/Double Mind” (DSIDM) is an awareness preparation workshop for professional dancers, developed by the Amsterdam based dance company Emio Greco|PC since 1996.

The Interactive Installation is a virtual version of the workshop. The installation offers participants the possibility to take part in a virtual version of the workshop in real time, while receiving verbal, physical and peripheral information. The design consists of an aluminum frame construction with one projection screen, 3 peripheral monitors, four sound speakers and a tracking camera with Infra Red projectors- surrounding the participant. The movement – tracking program “Gesture Follower” (GF) developed by Frédéric Bevilacqua (IRCAM), compares the data of the filmed version of the workshop with the real time data of the participant’s movements. As result of this comparison, different forms of feedback are given: sonification, visualization and music will accompany the participant while mentally and physically traveling through the Double Skin/Double Mind structure.  
ICKAmsterdam

The installation was initiated 2006 by Bertha Bemudez (EGIPC), Frederique Bevilacqua (IRCAM) and Chris Ziegler (ZKM Karlsruhe) during the notation research project “Capturing Intention”. At the end of 2007 Emio Greco|PC released a book, a film documentary (made by Maite Bermudez) and the DSIDM DVD-ROM. A demonstrative version of the installation traveled through festivals in Holland in that time.

In 2008 a two-year collaborative research project Inside Movement Knowledge (IMK) went into new methods for documentation, transmission and

preservation of contemporary dance knowledge. In IMK we developed and tested the professional version of DSIDM installation inside the AHK Amsterdam dance program with dance students and teachers conducting several labs until May 2010. From 2011 onwards the installation will be included in the curriculum of the AHK's dance training program.

### An environment for dance training

In DSIDM we had the means of tracking qualities of motion. The software was originally developed to relate hand gestures of a conductor to electronic music. In DSIDM we used it to analyze dance movement to improve movement qualities with specific sound feedback and visual information. After I participated in the "real" sweat away DSIDM workshop, it was obvious that we need a dedicated space for physical training.

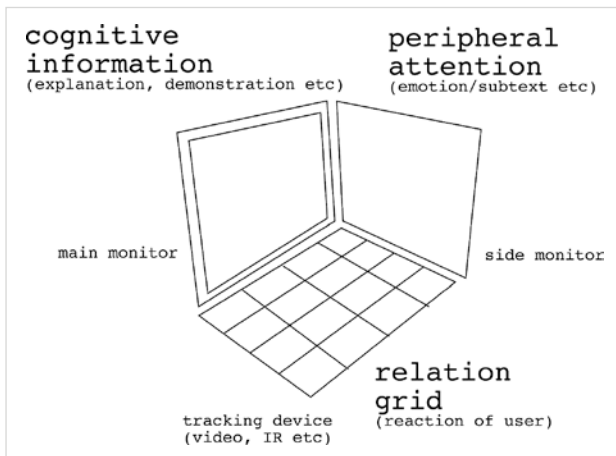


Fig. 1: DSIDM installation sketch Photo: Chris Ziegler

### Architecture of attention/affiliation

With a sketch of a "Sensational Interface" I laid out an idea of expanding the CD-ROM of DSIDM for an immersive learning environment. We had to reach the body in his best sensorial interface: in a workshop situation. The body needs physical training to learn DSIDM's movement qualities.

The hybrid character of new media tools on stage creates new ways of expressing movements by sound, video and light, but on the other hand it very often restricts possible moves to "read" movement information.

### Level A: Workshop

The introduction is a linear workshop in space and time, recreating the situation of a "normal" workshop, using the big screen in front of the dancer to offer a teaching situation to which he is used to. In that level Emio Greco gives a virtual dance training workshop for awareness preparation, mixing verbal commands with physical movement instructions.



**Fig. 2: DS|DM installation with Bertha Bermudez (Emio Greco|PC)** Photo: Thomas Lenden

### **Level B: Learn**

In level B we split the DSIDM holistic workshop experience into one source representing the body of Emio Greco in the main screen and a “talking head” monitor in the left upper corner of the cube to give more specific verbal instructions by Emio Greco – and Pieter C. Scholten. On the sides we display close-up views on body parts to steer the attention to specific movement qualities in body parts.

The GF software analyzes the movement of a dancer and displays the body silhouette. The DSIDM software creates an internal model of the body by capturing the movement of extremities with bounding boxes and using the gravity center of the body.

### **Level C: Customize**

Learning is a process of appropriation. Thus I designed, with Martin Bellardi – programmer of the installation interface – a way of accessing the structure of the lectures. A customization interface gives access on all levels and all chapters. The user can change settings, which are pre-set for level B. The DSIDM installation, reconstructing a dance workshop in level A, separating chapters in level B is turning DSIDM into a digital tool in level C.

### **Level D: Play/Create**

After learning, there is rehearsal there might be creation: A dancer is requested to use DSIDM’s dance qualities in his own way. Sarah Fdili Alaoui (IRCAM) created a visual and sounding moving object for a virtual pas-de-deux. The DSIDM installation constantly analyzes the dancers movement qualities and feeds a movement and sonification dialog.

### **Interfacing dance knowledge**

From IT to DSIDM it feels like concluding a circle: From cognition to emotion, from architecture to atmosphere. Talking about qualities and intention in dance is difficult enough, trying to capture them with digital tools sounds even more challenging.